**Small Business Innovation Research/Small Business Tech Transfer**

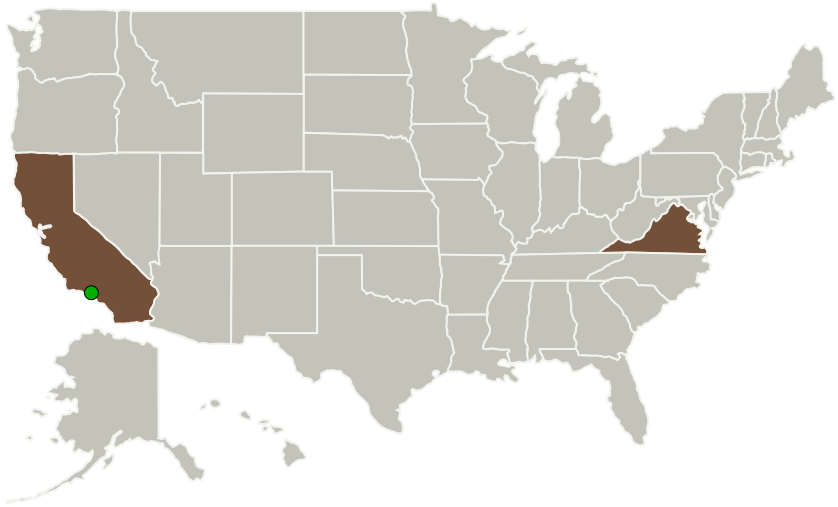
# Ku/Ka-Band Electrically-Scanned Line Array for Tri-Band Cloud and Precipitation Radar Applications, Phase II

Completed Technology Project (2015 - 2017)

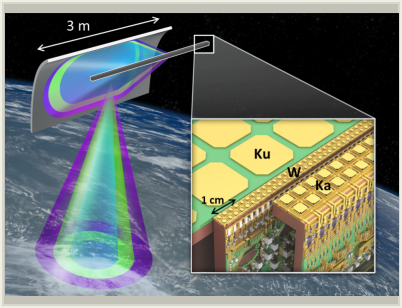
## Project Introduction

This proposed program addresses the need for a spaceborne phased array radar system that operates simultaneously at multiple frequency bands for future NASA remote sensing missions dedicated to answering emerging fundamental questions associated with aerosols, clouds, air quality and ecosystems. We will deliver active, electronically scanned array tiles at Ku- and Ka-band utilizing the Nuvotronics PolyStrata® technology for integration alongside an electronically scanned W-band array to form a tri-band system. The PolyStrata® wafer-scale microfabrication process, with capabilities to monolithically integrate dielectric-free antennas with air-coax feed networks in 3D, is a key enabler for achieving state-of-the art performance requirements and manufacturing scalability. Unprecedented power levels will be achieved by integrating state-of-the art GaN MMICs into the PolyStrata front-end architecture.

## Primary U.S. Work Locations and Key Partners



| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| Nuvotronics, Inc | Lead Organization | Industry | Radford, Virginia |
| Jet Propulsion Laboratory(JPL) | Supporting Organization | NASA Center | Pasadena, California |




Ku/Ka-Band Electrically-Scanned Line Array for Tri-Band Cloud and Precipitation Radar Applications, Phase II Briefing Chart Image

## Table of Contents


| | |
|---|---|
| Project Introduction | 1 |
| Primary U.S. Work Locations and Key Partners | 1 |
| Project Transitions | 2 |
| Images | 2 |
| Organizational Responsibility | 2 |
| Project Management | 2 |
| Technology Maturity (TRL) | 3 |
| Technology Areas | 3 |
| Target Destinations | 3 |

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| Primary U.S. Work Locations | |
|---|---|
| California | Virginia |

## Project Transitions

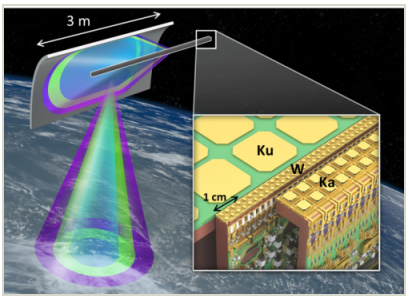
**June 2015:** Project Start

**September 2017:** Closed out

**Closeout Documentation:**

- Final Summary Chart*(https://techport.nasa.gov/file/137436)*

## Images




**Briefing Chart Image**
Ku/Ka-Band Electrically-Scanned Line Array for Tri-Band Cloud and Precipitation Radar Applications, Phase II Briefing Chart Image *(https://techport.nasa.gov/image/137233)*

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Nuvotronics, Inc

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Scott A Meller

**Co-Investigator:**

Benjamin W Cannon

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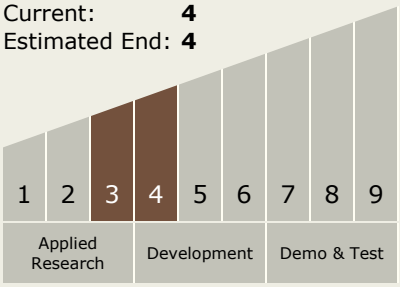
## Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**




## Technology Areas

**Primary:**

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System